REMARKS

In an Office Action dated July 12, 2010, claims 1-8 of the present application were rejected. Herein, claims 1 and 5 have been amended. No new matter has been added. Applicants respectfully request continued examination and reconsideration in view of the following.

I. Claim Objections

Claim 1 was objected to due to informalities. In particular, the Examiner notes that the word "through" is misspelled as "though" in claim 1. Applicants note that claim 1 has been amended to change "though" to --through--. Accordingly, Applicants respectfully request that the objection to claim 1 be withdrawn.

II. Claim Rejections under 35 U.S.C. 103(a)

Claims 1-8 were rejected under 35 U.S.C. 103(a) as being unpatentable over EP 1101524 (hereafter "EP '524") in view of Arno (US 6,905,663), and further in view of Paules (US 4,015,546) or Pibernat (US 4,397,293). Applicants respectfully request reconsideration of the above-noted rejection in view of the following.

Claim 1 recites heating an exhaust gas in the presence of O_2 without adding H_2O and/or H_2 to the exhaust gas while passing the exhaust gas through a detour path formed by plural plate members. Applicants respectfully submit that this feature of claim 1 is not disclosed, suggested, or otherwise rendered obvious by any combination of EP '524, Arno, Paules, and Pibernat.

EP '524 discloses passing a waste gas through a thermal decomposition means which is supplied with H_2, O_2, and H_2O to decompose PFCs, oxidizing gases, and CO into acidic gases and CO_2 (Paragraph [0024]). However, Applicants note that EP '524 provides no disclosure as to the structure of the thermal decomposition means.

Arno discloses the treatment of a fluorocompound containing gas by passing the fluorocompound containing gas via a gas flow passage 24 through a pre-heat stage 6 to a reaction stage 7 in which steam is introduced into the gas flow passage 24 at a steam entrance 30 causing

the steam to mix and react with the fluorine constituents of the gas stream (Col. 4, Lines 49-57, and FIG. 2). However, Applicants note that Arno provides no disclosure as to the structure of the gas flow passage 24 during pre-heat stage 6 or reaction stage 7.

Paules is directed to a refuse incinerator in which refuse is introduced into a combustion chamber 89a within a primary incinerator 86a. Additionally, the primary incinerator 86a includes a heat exchanger 98a located around an outer metal shell 90a of the combustion chamber 89a such that a heat exchange channel 160 is formed outside the combustion chamber 89a (Col. 11, Lines 15-19).

In this regard, Paules teaches the use of spiral baffles 162 in the heat exchange channel 160 in order to increase retention time of air within the heat exchange channel 160 before the air is discharged into the combustion chamber 89a (Col. 11, Lines 25-30). However, Applicants note that the spiral baffles are not provided in the path of the refuse (i.e., the object that is to be treated in the combustion chamber does not pass through the spiral baffles of the heat exchange channel).

Pibernat is directed to a heating apparatus having a heat recovery apparatus. In particular, Pibernat discloses that the heating apparatus includes: a combustion air inlet 1 that opens into a large capacity container 6; a hearth 2; a combustion chamber 3 positioned underneath the hearth 2; and a heat recovery apparatus 4 located in the combustion chamber 3 positioned underneath the hearth 2. During operation of the heating apparatus, combustion air is introduced into the container 6, and heat generated by the hearth 2 is directed into the combustion chamber 3 and a space 13 before being evacuated by an evacuation line 15.

Additionally, Pibernat teaches that the heat recovery apparatus 4 includes two connected casings 4A and 4B to which a line 16 is connected by which a heat exchange gas or fluid may be introduced such that heat may be recovered from the combustion chamber 3 and released to a heating system (Col. 2, Lines 29-34 and 45-47). Additionally, Pibernat discloses that the casings 4A and 4B may include interior baffles so as to increase the path of the heat exchange fluid such that the maximum amount of heat is recovered (Col. 2, Lines 57-60).

However, Applicants note that during the operation of the heating apparatus, combustion air let into the heating apparatus via the combustion air inlet 1 does not pass through the heat recovery apparatus 4, (i.e., the object that is to be treated by interacting with the hearth in the combustion chamber does not pass through the interior baffles in the heat recovery apparatus).

In view of the above, Applicants respectfully submit that any combination of EP '524, Arno, Paules, and Pibernat would, at best, teach the use of baffles in a heat exchange channel for preheating air provided to a combustion chamber, or the use of baffles in a heat exchange channel for recovering heat from the combustion chamber. However, as none of the cited references teach the use of baffles within a combustion chamber, and as none of the cited references teach passing the object to be treated through baffles during a combustion stage, Applicants respectfully submit that any combination of EP '524, Arno, Paules, and Pibernat could not teach passing an exhaust gas (i.e., the object to be treated during the heating stage) through baffles during a heating stage.

In contrast to any combination of EP '524, Arno, Paules, and Pibernat, claim 1 requires that an exhaust gas, which is to be treated by the method of claim 1, be heated in the presence of O_2 without adding H_2O and/or H_2 to the exhaust gas while passing the exhaust gas through a detour path formed by plural plate members. In other words, claim 1 requires that the exhaust gas, which is to be treated by the method of claim 1, pass through the detour path during the heating stage.

In view of the above, Applicants respectfully submit that any combination of EP '524, Arno, Paules, and Pibernat fails to disclose, suggest, or otherwise render obvious the above-noted feature of claim 1. Therefore, claim 1 is patentable over any combination of EP '524, Arno, Paules, and Pibernat.

Applicants note that by providing the above-noted feature of claim 1, it is possible to achieve the advantageous effect of greatly increasing the temperature of the exhaust gas during the heating stage. As such, the decomposition efficiency (or reaction efficiency) of the exhaust

gas is improved during the heating process. Applicants note that as none of the cited references teach the use of baffles in a combustion chamber, and that as none of the cited references teach passing the object to be treated in a combustion chamber through baffles, any combination of EP '524, Arno, Paules, and Pibernat could not achieve the above-noted advantageous effect of the presently claimed invention.

Additionally, claim 1 recites heating an exhaust gas in the presence of O_2 without adding H_2O and/or H_2 to the exhaust gas while passing the exhaust gas through a detour path formed by plural plate members, and then adding H_2O to the exhaust gas, in a space in which no plate member for a detour path is provided therein, to decompose or oxidize a fluorine compound. Applicants respectfully submit that these features of claim 1 are not disclosed, suggested, or otherwise rendered obvious by any combination of EP '524, Arno, Paules, and Pibernat.

As noted above, EP '524 provides no disclosure as to structure of the thermal decomposition means, and Arno provides no disclosure as to the structure of the gas flow passage during the pre-heat stage or the reaction stage.

Applicants note that Paules discloses the use of spiral baffles 162 throughout the entirety of the heat exchange channel 160 (*See* FIG. 7), and that Pibernat discloses the use of interior baffles 18 throughout the entirety of casings 4A and 4B of the heat recovery apparatus 4 (*See* FIG.s 1 and 2). In other words, Paules and Pibernat teach the use of baffles in a conduit, apart from a combustion chamber, throughout the entirety of the conduit, i.e., from an inlet to an outlet.

Assuming for the sake of argument that any combination of EP '524, Arno, Paules, and Pibernat could teach using baffles within a conduit during the treatment of an object, Applicants respectfully submit that any combination of the references would require the use of baffles throughout the entirety of the treatment of the object based on the teachings of Paules and Pibernat.

In contrast, Applicants note that amended claim 1 requires heating an exhaust gas in the presence of O_2 without adding H_2O and/or H_2 to the exhaust gas while passing the exhaust gas through a detour path formed by plural plate members, and then adding H_2O to the exhaust gas in a space in which no plate member for a detour path is provided therein to decompose or oxidize a fluorine compound. In other words, amended claim 1 requires that the exhaust gas to not be passed through the detour path during the entirety of the treatment process.

In view of the above, Applicants respectfully submit that any combination of EP '524, Arno, Paules, and Pibernat fails to disclose, suggest, or otherwise render obvious the above-noted features of claim 1. Therefore, claim 1 is patentable over any combination of EP '524, Arno, Paules, and Pibernat.

Applicants note that, as described in the specification, adding H_2O to the exhaust gas results in the production of HF (HF being a corrosive gas) due to the decomposition of PFC. By providing the above-noted feature of adding H_2O to the exhaust gas in a space with no plate members provided therein, the corrosive gas (HF) is unable to cause corrosion to the plate members. As such, the above-noted features of the presently claimed invention achieve the advantageous effect of efficient decomposition of the exhaust gas based on the decomposition mechanism of the exhaust gas.

Claims 2-4 are patentable over any combination of EP '524, Arno, Paules, and Pibernat based at least on their dependency from claim 1.

Claim 5 recites heating an exhaust gas in the presence of O_2 without adding H_2O and/or H_2 to the exhaust gas while passing the exhaust gas through a detour path formed by plural plate members, and then adding H_2 to the exhaust gas, in a space in which no plate member for a detour path is provided therein, to decompose or oxidize a fluorine compound. Applicants respectfully submit that any combination of EP '524, Arno, Paules, and Pibernat fails to disclose, suggest, or otherwise render obvious these features of claim 5 for reasons similar to those discussed above with respect to claim 1. Therefore, claim 5 is patentable over any combination of EP '524, Arno, Paules, and Pibernat.

Claims 6-8 are patentable over any combination of EP '524, Arno, Paules, and Pibernat based at least on their dependency from claim 5.

Claims 1-8 were rejected under 35 U.S.C. 103(a) as being unpatentable over Arno in view of EP 1101524, and further in view of Paules or Pibernat. As noted above, claims 1-8 are patentable over any combination of Arno, EP '524, Paules, and Pibernat. Accordingly, Applicants respectfully submit that claims 1-8 are patentable over Arno in view of EP '524, and further in view of Paules or Pibernat.

III. Conclusion

In view of the foregoing amendments and remarks, Applicants respectfully submit that claims 1-8 are clearly in condition for allowance. An early notice thereof is earnestly solicited.

If, after reviewing this Amendment, the Examiner feels that there are any issues remaining which must be resolved before the application can be passed to issue, it is respectfully requested that the Examiner contact the undersigned by telephone in order to resolve such issues.

Respectfully submitted,

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